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CURRENT LITERATURE

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Vol. 4, No. 3. WASHINGTON, D. C. October, 1934.

Agriculture.

Achieving a balanced agriculture. Washington. Government Printing Office, 1934. 52p. U.S. Agricultural Adjustment Administration. The why of agricultural adjustment.

Farmers run their show. By Chester C. Davis. Washington. Government Printing Office, 1934. 13p. U.S. Agricultural Adjustment Administration.

Improved farm situation shown by pick-up in sales. Implement and Tractor Trade Journal. v. 49, no. 19. September 22, 1934. p. 10-11, 18. Heavy rains throughout drough areas rush purchases of tractors and drills for fall grain planting, with Governmental benefits spurring both sales and collections.

New farm credit system. Extension Division News, Virginia Polytechnic Institute. v. 16, no. 11. October, 1934. p. 1-3. Objectives: 1. Development of efficiently managed farmer owned and controlled system of cooperative credit for agriculture supplementing commercial credit agencies. 2. Credit adapted to varying needs of agriculture on basis that will permit borrowers to work themselves out of debt. 3. Credit at reasonable cost on business basis without government subsidy. 4. Equalization of interest rates in various areas, making it possible for producers to utilize advantages of investment market through effective organization.

Small farms fared best in shift of values. Farm Implement News. v. 55, no. 19. September 13, 1934. p. 26. For United States as a whole, average value per acre of farm land and buildings, as reported by census, increased 75 per cent from 1910 to 1920, and then decreased 30 per cent in next ten years, leaving net increase of 23 per cent over 20 years. For farms under 20 acresnet change was 85 per cent increase, and for farm of 1,000 acres or more net increase was only 3 per cent.

Air Conditioning.

Air conditioning and heating. By W. L. Durand. Architectural Forum. v.60, no. 6. June, 1934. p. 431-439.

Controls permit sectional air conditioning in model house. By J. W. Baugher, Jr. Electrical Refrigeration News. v. 13, no. 4. September 26, 1934. p. 9.

Load factor in air conditioning. By John Everetts, Jr. Refrigerating Engineering. v. 28, no. 3. September, 1934. p. 134-135, 154. New records and computations demonstrated.

Air Conditioning. (Cont'd)

Operating and servicing air conditioning systems. By R. B. Reagan. Power Plant Engineering. v. 38, no. 10. October, 1934. p. 472-474.

Radiation vs. warm-air for air conditioning. By W. D. Jordan. Fuel Oil Journal. v. 13, no. 4. October, 1934. p. 8, 60-64.

Winter humidification needed to insure bodily comfort. By R.C. Bonthron. Electric Refrigeration News. v. 13, no. 4. September 26, 1934. p.12. Temperature, volume, and moisture content determine amount of water vapor needed.

Belts.

High-speed belt drives. By C.A. Norman. 1934. 31p. Ohio Engineering Experiment Station. Bulletin no. 83. Theoretical and experimental investigation of performance of modern rubberized belts.

Building Construction.

Brick slabs developing as newest products for veneering work. Brick and Clay Record. v. 85, no. 3. September, 1934. p. 83-86. Methods of application. Using metal strips. How corners are made.

Construction systems analyzed. By William B. Cobb, Herbert Lippmann, and Chester Root. Architectural Forum. v. 60, no. 6. June, 1934. p. 423-430. Graphic presentation of portion of study of floors, wall and partitions for low-income group housing, together with square foot costs as compiled by Housing Study Guild. It should be realized that first costs alone do not determine economic validity of selection of structural systems, and higher-first-cost materials may prove most economical in final analysis. Effect which any particular system might have on cost of installation of mechanical trades, or on maintenance, must be considered, as well as size, type and location of building. Part of information gathered in course of study made at Housing Study Guild beginning in January of this year, is here presented graphically. Purpose of Guild's study was to "examine and evaluate building materials and methods of construction not commonly in use **** in order to determine their desirability and comparative cost as substitutes for established practices on large scale construction of low-income group housing."

Dry-press method of making paving brick. By J. C. Everhart. 1934. 20p. Ohio. Engineering Experiment Station. Circular no. 31.

Mortar mix made from waste clay proves practical in application. By H.R. Straight. Brick and Clay Record. v. 85, no. 3. September, 1934. p. 94-95, 100. Results of tests made on mortar mix and gives specifications for using this new by-product in the clay industry.

Structural progress. By H. V. Spurr. Architectural Forum. v. 60, no.6. June, 1934. p. 405-422. Structure, floors, walls, wall finish, insulation, roofs, windows, paint and finish, wall finish, waterproofing.

Building Construction.

Tests on nailed joints provide data on strengths. By J. B. Wells. Engineering News-Record. v. 113, no. 13. September 27, 1934. p. 391-392. Usual construction conditions simulated in test series. Results show load-deformation relation and safe carrying strengths. Comparison between timber and plywood indicated.

Time for farm repairs and improvements. By John Lacey. Prairie Farmer. v. 106, no. 19. September 15, 1934. p. 2. Government's modernization plan makes credit available.

When bids and budget do not balance: how to reduce construction costs. By Harold R. Sleeper. Architectural Record. v. 76, no. 2. August, 1934. p. 140-144.

Conservation.

Conservation lessons the 1934 summer has taught us. By Clifford V. Gregory. Fertilizer Review. v. 9, no. 3. July-August, 1934. p. 6, 11.

Cotton and Cotton Ginning.

Growing cotton under irrigation in the Wichita Valley of Texas. By C. H. McDowell. 1934. 21p. Texas. Agricultural Experiment Station. Bulletin no. 494.

Many distinctive features found in new gin. Cotton Ginners' Journal. v. 5, no. 10. July, 1934. p. 9, 17, 19, 22. Discussion of Hardwicke-Etter gin.

Our national cotton policy. By W. L. Clayton versus Dr. Tait Butler. 1934. 24p. Clemson Agricultural College. Extension Service. Circular no. 135.

Cultivation.

Comparison of the surface, furrow, and listed methods of planting corn. By Merle T. Jenkins. Journal of American Society of Agronomy. v. 26, no.9. September, 1934. p. 734-737. Surface, furrow and listed methods of corn planting were compared for 5-year period. Yields from three methods of planting were not significantly different, but considerable extra care was required to obtain comparable stands in listed plantings. Data are reported on influence of method of planting upon a number of characters of corn plant.

Fallowing land conquers drough. By E. R. Parsons. Western Farm Life. v. 36, no. 8. August 15, 1934. p. 8-9. When there is sufficient water in soil, crop can be raised without drop of rain.

Dams.

International congress on large dams. Canadian Engineer. v. 67, no. 13. September 25, 1934. p. 7-10. Pincipal features governing design and construction of concrete and earth dams discussed at Congress in Scandinavia sponsored by International Commission.

Dams. (Cont'd)

Largest British dam completed in India. Engineering News-Record. v. 113, no. 13. September 27, 1934. p. 405-406. Mettua dam containing 2,000,000 cubic yards of masonry and concrete, 280 feet high and 5,000 feet long, is completed on Cauvery River after six-year construction period. Reservoir of 2,140,000-acre feet capacity will be used for rice irrigation and flood control

Storage dam recommended to control Upper Potomac. Engineering News Record. v. 111, no. 12. September 20, 1934. p. 360-361. Earth dam proposed on Savage River to impound 6½ billion gallons. Will increase dry-weather flow in upper Potomac to 60 m.g.d.

Electricity in the Home.

Electrical progress. By Henry F. Richardson. Architectural Forum. v.60, no. 6. June, 1934. p. 445-452.

Study of factors of economy in electrical cooking of a typical day's meals in Maine. By Lolie Smith. 1934. 87p. Maine Agricultural Experiment Station. Bulletin no. 371.

Engines.

Low-compression spark-ignition oil-burning-engine analysis. By Frederick H. Dutcher. S.A.E. Journal. v. 35, no. 1. July, 1934. p. 257-266. Purpose of this paper is, first, to set down methods which have been considered in effort to develop gasoline-type engine which will operate satisfactorily on non-volatile fuels, such as furnace or heating oil. Second, to describe briefly commercial examples of use of these various methods. Third, to analyze possibilities of these several processes with regard to power and efficiency, comparing them - as well as results to be expected from use of motor gasoline - with those of engine operating on aviation gasoline of basic standard.

Power generation by Diesel engines. Power Plant Engineering. v. 38, no. 10. October, 1934. p. 462-467.

Evaporation.

Evaporation and water supply. Farm and Ranch. v. 53, no. 15. August 1, 1934. p. 12. Texas Experiment Stations have made study of evaporation and report that total losses from evaporation ranges from 45 to 55 inches per annum in East Texas; from 55 to 65 inches in Central Texas; and up to as high as 75 inches further west.

Evaporation from water surfaces: a symposium. By Carl Rohwer, Robert Follansbee and sub-committee on evaporation, special committee on irrigation hydraulics. 1934. 671-747. American Society of Civil Engineers. Paper no. 1871. Reprinted from Transactions, vol: 99.

Erosion Control.

All washed up. By Owen P. White. Collier's. v. 94, no. 13. September 29, 1934. p. 12-13, 43-44.

Erosion Control. (Cont'd)

Erosion en la cuenca alta del Rio Atoyac, afluente del Balsas. Algunas consideraciones sobre su hidrologia. Necesidad de mejorar sus condiciones de escurrimiento. By Alfonso de la O. Irrigacion en Mexico. v. 9, no.1. July, 1934. p. 3-30. Erosion in the wide basin of the Atoyac river, a tributary of the Balsas. Some considerations on its hydrology. Need of improving the runoff conditions.

Erosion ruins farms. By Thomas A. Leadley. Nebraska Farmer. v. 76, no.20. September 29, 1934. p. 6, 14. Save soil and moisture by terracing and gully control

Erosion takes huge toll. By T. J. Starker. Oregon Farmer. v. 57, no. 17. August 23, 1934. p. 4. Proper soil covering will help prevent ruinous washing.

Impending desert. By Dr. Frank Thone. Science News Letter. v. 26, no.697. August 18, 1934. p. 106-107. Erosion attacking farm lands, grazing areas and forests, cuts soil into sterile gullies, useless for centuries.

Large erosion control project to be started in Arizona. Engineering News-Record. v.113, no. 15. October 11, 1934. p. 478. Allotment of $250,000 for preliminary work on project has been made. Area involves more than 8,000,000 acres on drainage basin of Gila River where erosion and destructive floods have devastated areas of fertile soil and menaced irrigation systems. Initial work on project will consist mainly of surveys which will form basis for development plan. All but 3 per cent (246,000 acres) of land is owned by Federal Government.

New light on soil erosion. Farm and Ranch. v. 53, no. 13. July 1, 1934. p. 24. Remedy is to (1) make soil as absorbent as possible (by means of dense vegetation and certain soil treatments, and (2) keep run-off water as clear as possible. Bermuda and sod bag dams are serving to stop gullies. Strip cropping on terraces is said to be distinct improvement over strip cropping on contours alone, and is even thought to be better than terracing alone.

Strip cropping saves wind damage. Farm and Ranch. v. 53, no. 14. July 15, 1934. p. 14. Department of Agriculture reports that by proper methods of tillage, by strip farming as used successfully in sections of Montana, and by planning land-use so as to keep these soil types most subject to blowing in sod crops, many experienced and capable farmers are quite effectively controlling wind erosion on their own lands. Wider adoption of these methods may be expected in the future.

Turbulence and the transportation of rock debris by streams. By John Leighly. 1934. 453-464p. Reprinted from Geographical Review. v. 24, no. 3. July, 1934.

Farm Buildings and Equipment.

Building a farm pond. By Henry Hatch. Kansas Farmer. v. no. 15. August 5, 1934. p. 10. Some pond-building suggestions founded on experience.

Farm Buildings and Equipment.

Building a two-wheeled trailer. By Gerald Davison. Hoard's Dairyman. v. 79, no. 14. July 25, 1934. p. 332. Detailed drawings to show construction.

Farmers can use modernization loans for new buildings. Utah Farmer. v. 15, no. 3. September 10, 1934. p. 2. National Lumber Manufacturers' Association stated that "improvements upon real property," as used in section 2 of Housing Act, has been construed by Federal Housing Administration to mean, when applied to farms, new construction as well as modernization and repair, provided structures do not exceed $2000 in cost.

Standard panel unit simplifies erection of steel farm buildings. Construction Methods. v. 16, no. 8. August, 1934. p. 45. Shows details of panel unit, showing interlocking feature and method of insulation with fiber board.

Types of milk houses. By H. B. White. Hoard's Dairyman. v.79, no. 13. July 10, 1934. p. 317.

Farm Machinery and Equipment.

Fall work for farm machines. Implement and Tractor Trade Journal. v. 48, no. 20. October 6, 1934. p. 8-9. Off-season plowing advisable for restoring normal moisture content of soil. More erosion treatment is needed to recoup soil losses of 1934.

Farm workers and farm machinery in Scotland. Monthly Labor Review. v. 38, no. 6. June, 1934. p. 1346-1347.

Power farming progress. By R. U. Blasingame. Pennsylvania Farmer. v. 3, no. 5. September 1, 1934. p. 17.

Fertilizers.

Conservation of burnt lime, limestone, dolomite and calcium silicate in soil as influenced by methods of incorporation. By W. H. MacIntire and others. 1934. 52p. Virginia. Agricultural Experiment Station. Technical Bulletin no. 54.

Fertilizer placement studies with the potato on prominent soil types in 1932. By B. E. Brown and G. A. Cumings. American Potato Journal. v. 11, no.6. June, 1934. p. 141-147.

Practical effect of too much manure. By Lyman H. Andrews. Through the Leaves. v. 22, no. 5. September, 1934. p. 155-158. High yields and sugar contents may be maintained by following well planned rotation balanced with reasonable amount of barnyard fertilizer, application of phosphate where needed; preparation of good seed-bed; reasonably early planting; good germination and thinned stand; and early and frequent light applications of irrigation water; all of which will force growth during early part of growing season that will more nearly utilize all of available nitrogen in soil and allow full ripening as harvest approaches.

Fertilizers. (Cont'd)

Preparation of physiologically neutral fertilizer mixtures. By Kenneth C. Beeson and William H. Ross. Industrial and Engineering Chemistry. v. 26, no. 9. September, 1934. p. 992-997. Reactions of monoammonium phosphate with limestone and with dolomite.

Proceedings of the tenth annual convention of the National Fertilizer Association held at White Sulphur Springs, W. Va. June 11, 12 and 13, 1934. 1934. 137p.

Proper use is important. Oregon Farmer. v. 57, no. 17. August 23, 1934. p. 9. Fertilizers are valuable only if properly applied.

Flax.

More about flax. By A. T. Bartel and C. J. Wood. Arizona Producer. v. 13, no. 13. September 15, 1934. p. 1, 15. Data on seeding, care, harvesting and yields, based on tests at Mesa experiment farm.

Flood Control.

Control of river levels. Canadian Engineer. v. 67, no. 5. July 31, 1934. p. 8. Construction of submerged sills or weirs in St. Clair River, with view to control of discharge from lakes to north and west will be begun.

Droughts and floods. By E. V. Wilcox. Country Gentleman. v. 104, no. 8. August, 1934. p. 16-17, 54.

Levee building at Lake Okeechobee. Construction Methods. v. 16, no. 8. August, 1934. p. 34-37. Draglines and dredges construct 66½ mile embankment to curb flood tides created by Florida hurricanes.

Mexico and United States join in border flood control. By L. M. Lawson. Engineering News-Record. v. 113, no. 14. October 4, 1934. p. 419-423.

Floors.

Asphalt concrete for floor construction. By C. H. Jefferson. Michigan Agricultural Experiment Station, Quarterly Bulletin. v. 17. August, 1934. p. 3-9. Advantages: 1. Economical to construct. 2. Easy to mix and lay. 3 Pliable and will not easily crack. 4. More comfortable for stock to stand on. 5. Will not absorb moisture. Disadvantages: 1. Cut-back asphalt must be carefully handled around open flame. 2. Unless asphalt is heated, it is not easy to use in cold weather. 3. Dries slowly, especially inside where it is protected from air circulation.

Flow of Water and Gases.

Flow measurement. Instruments. v. 7, no. 7. July, 1934. p. 132. Discussion of F. J. Leerburger's letter on Reynolds numbers, May issue, p. 89.

Flow of steam in pipes. By Julius Hulman. Power Plant Engineering. v. 38, no. 10. October, 1934. p. 458-460. Chart for easy solution of flow, and pressure drop.

Flow of Water and Gases.

Gibson method of measuring flow of water. Canadian Engineer. v. 67, no. 5. July 31, 1934. p. 9-10. Reply to paper by Dr. Thoma presented at Annual Meeting of American Society of Mechanical Engineers. Dr. Thoma's conclusions discussed and corrected.

Measuring water flow in convergent intake sections. Power Plant Engineering. v. 38, no. 10. October, 1934. p. 475-477. Describing novel method of using current meters in measuring flow of water to hydraulic turbines.

Stream flow records for the year October 1, 1932 to September 30, 1933. 1934. 146p. Pennsylvania Water Resources Service, Harrisburg, Pennsylvania.

Fuels.

Alcohol in non-detonating fuels. By J. G. Boobido. Sugar News. v. 15, no. 5. May, 1934. p. 262-264.

1934 road tests show more powerful cars, and better motor fuels to automotice engine design and performance.

Heating.

How much will oil cost me? By Henry D. Crane. Fuel Oil Journal. v. 13, no. 4. October, 1934. p. 16, 50-52. Gives simple method for computing and comparing probable coal and oil costs.

Preparation of specimens for measurement of thermal conductivity. By John Mead Adams. Review of Scientific Instruments. v. 5, no. 7. July, 1934. p. 250-252. Paper described exactly reproducible method of applying metallic coatings to surfaces of solid specimens and of imbedding thermocouples precisely at any given depth in coatings. Method makes possible complete elimination of variable discontinuity of temperature which is always present, to greater or less degree, in measurements of thermal conductivity, between specimen and metallic surfaces in contact with it. New technic for stripping of fine silk-covered wires is described.

Rate of heat transfer from steam coil to water. By F. H. Rhodes. Industrial and Engineering Chemistry. v. 26, no. 9. September, 1934. p. 944-946.

Hotbeds.

Hotbeds and coldframes. By A.M. Binkley and Richard V. Lott. 1934. 29p. Colorado Agricultural Experiment Station. Bulletin no. 328.

Houses.

Effort to revive home building in U.S. By A.G. Dalzell. Canadian Engineer. v. 67, no. 4. July 24, 1934. p. 24. U.S. Government has new plan for subsidizing construction of residences instead of former low-cost housing scheme.

Housing shortages and needs for repairs and improvements. By Thomas S. Holden. Architectural Record. v. 76, no. 3. September, 1934. p. 151-154. Outlook for substantially increased volume of repair and modernization work, and for new residential building under admirable and timely National Housing Act is good, though results will be felt to moderate

Houses. (Cont'd)

extent in 1934 and to a much greater extent in 1935. Act will probably not accomplish much toward raising general housing standards of low-income groups, whose needs for space and facilities are greatest. At some stage American people will begin to see clearly economic absurdity of pauperizing American families and hamstringing prosperity by putting unemployed people on relief, when manpower, technology, materials and credit resources exist to put every able worker on real job improving public and private living facilities of people.

Kitchen progress. Architectural Forum. v. 60, no. 6. June, 1934. p.453-456.

Low cost brick home construction demonstrated at World's Fair. Brick and Clay Record. v. 85, no. 4. October, 1934. p. 121. Model farm house built of reinforced face brick slabs draws comments of praise from layman and builder.

Survey reveals 143,000 homes ready to be built. Brick and Clay Record. v. 85, no. 3. September, 1934. p. 82. Social and economic possibilities attendant with successful administration of National Housing Act might be realized more clearly when one considers that estimated 143,000 new urban homes would actually be built, at once, if adequate financing becomes available. This computation is result of survey made by National Association of Real Estate Boards.

Houses, Remodeling.

Analysis shows what borrowers buy with modernization and repair loans. Domestic Commerce. v. 14, no. 9. September 30, 1934. p. 103.

From Nebraska comes our second remodeled home. By Ellen L. Pennell and H. E. Wichers. Successful Farming. v. 32, no. 10. October, 1934. p. 8-9, 20-21.

Modernizing the Kansas home. By H. E. Wichers. 1934. 133p. Kansas. Engineering Experiment Station. Bulletin no. 32.

Income.

Big increase in farm income assured. By A. E. Long. Farm Implement News. v. 55, no. 19. September 13, 1934. p. 18-19. Significant facts revealed by survey in typical State in worst drough area.

Government report on farmers' income and expenditures in 1933. Farm Implement News. v. 55, no. 20. September 27, 1934. p. 19. Table gives total gross income, 1923-1933.

Revised estimate of benefit payments to farmers. Farm Implement News. v. 55, no. 19. September 13, 1934. p. 19. Revised estimate of benefit payments to be paid to farmers under various production adjustment contracts shows total of $779,402,000. Part of this was paid in 1933, part this year and remainder will be paid in 1935, thus completing so-called three-year program which was started in fall of 1933. Table shows revised estimates.

Hydroelectric Power.

Twenty-sixth annual report of the Hydro-electric power commission of the Province of Ontario for the year ended October 31st, 1933. Toronto, 1934. 501p.

Insulation.

Hot and cold surface insulation. By Ernest E. Crouch. Refrigeration, Cold Storage and Air Conditioning. v. 5, no. 5. August 31, 1934. p. 27-29. Insulating material for hot surfaces should have following properties: 1. Low conductivity. 2 Non-inflamable. 3. Should inhibit any corrosive effect on metal surface. 4. Withstand vibration without breaking off. 5. Be easy to apply. 6. Low specific gravity (for although provision can be made for additional weight, generally speaking, insulating value varies inversely to weight.) 7. Stand large temperature range without cracking. 8. Be durable. 9. Cost should be low, considered in relation with its ability to fulfill above properties. Desirable properties for cold surfaces: 1. Low thermal conductivity. 2. Permanently non-absorbent to atmospheric moisture. 3. Exhibit no tendency to mould or rot. 4. Vermin proof and free from objectionable odor. 5. Lend itself to structural application and not disintegrate or silt. 6. Fire resistant.

Is it possible to over-insulate? By Siegfried Ruppricht. Refrigerating Engineering. v. 28, no. 3. September, 1934. p. 131-135. Insulation and the design of refrigerators. The rationale of the ice box.

Testing sheet steel insulation. By J. T. Nichols. Refrigerating Engineering. v. 28, no. 2. August, 1934. p. 76-79. If good insulation is to be obtained, steel must have low emissivity for radiation frequencies which transmit heat at these temperatures. Comparative tests indicate that there is no practical difference in heat transfer through walls insulated with hot rolled and annealed black plate, simplest available finish, and walls insulated with sheets of other grades of finish up to and including full finished black plate.

Irrigation.

Checking up on irrigation practice. By Raymond Carroll. California Citrograph. v. 19, no. 8. June, 1934. p. 202. Discussion of alternate furrow irrigation.

Dam in every coulee . By Arnold Hanson. Montana Farmer. v. 22, no. 1. September 1, 1934. p. 3. Insurance against drouth. Cost is comparatively low. Action was started in Garfield County last summer to interest dry land farmers in small, privately owned irrigation projects. From all points of view, this seems to be economically sound movement.

Designing a water supply for a golf course. By Paul E. Green and George L. Oppen. Engineering News-Record. v. 113, no. 11. September 13, 1934. p. 342-343. Water demand of a golf club is characterized by low load factor. Fairway irrigation, a practice now favored, is accomplished by either of two systems, one of which requires use of hose to supplement piping

Devices for self-cleaning irrigation canals. Western Farm Life. v. 36, no.8. August 15, 1934. p. 2. Costs roughly million dollars a year to remove material which water from Colorado River deposits in the canal system of

Imperial Valley in California. Vortex tube trap is for use in relatively swift streams, riffle deflector in moderate currents, and grating traps in gentle currents. Vortex trap consists of tapered tube in floor of flume built in canal. Tube lies diagonally across stream and has wide slit full length of upper side, which is placed level with floor of flume. Bedload of sand and gravel traveling down channel is caught by whirling body of water inside tube device and conveyed to discharge outlet in side or bottom of structure. Three installations in large canals have proved effective. Riffle-deflector type consists of series of curved vanes set on bottom of ditch or canal. Each vane is curved into approximately 90 degree arc of circle. Vanes when set in line normal to current and properly spaced, will move bedload across stream to opening in side wall of channel, where small stream carries debris out. One installation of riffle-deflector has been made in canal and functions satisfactorily when vanes can be kept rid of such debris as tins, paper cartons, and other trash. Grating type of trap is relatively new, and consists of series of straight or curved vanes set on floor of flume normal to stream flow and uniformly spaced, with top edges inclined downstream. Sand particles are drawn down behind top edge of device and retained there so that through force of gravity they may settle vertically into suitable receptacle below grating in floor of flume, and be discharged.

Hints on irrigation well construction. By W. E. Code. Through the Leaves. v. 22, no. 5. September, 1934. p. 140-142.

Historia general del sistema nacional de riego. Part. 2 Irrigacion en Mexico. v. 9, no. 1. July, 1934. p. 35-69. General history of the national irrigation system.

Importance of measuring irrigation water. By R. L. Parshall. California Cultivator. v. 81, no. 16. August 6, 1934. p. 400. It is just as essential that user have his irrigation water measured as it is to have his grain sold by the bushel.

Irrigation report. Nebraska Farmer. v. 76, no. 20. September 29, 1934. p. 14. Report of discharge of North Platte, South Platte, and Platte Rivers.

Mexico appropriates $1,300,000 for dam on irrigation project. Engineering News-Record. v. 113, no. 15. October 11, 1934. p. 479. To provide water supply for more than 100,000 acres of land in lower Rio Grande Valley. Project will carry forward plan which was conceived about 25 years ago, when work was started on dam and canal system which would have involved a total expenditure of about $25,000,000. At that time project planned irrigation of about 1,000,000 acres of land.

Protest larger reservoir. By Carl E. Hayden. Idaho Farmer. v. 52, no. 14. July 12, 1934. p. 11. Upriver farmers disfavor American Falls proposal. Expressing belief that their future security depends upon construction of dams on north and south forks of Snake river, water users feel they would not be benefitted to any expenditure of funds at American Falls, and that plan may interfere with their own projects which have only been partially approved by federal reclamation department. Delegates pointed out that unless work was completed before further development of lower valley section was undertaken, $4,000,000 P.W.A. appropriation for reservoirs on two forks might be lost or pared.

Irrigation. (Cont'd)

PWA rescinds loan for Verde project in Arizona. Engineering News-Record. v. 113, no. 15. October 11, 1934. p. 478. According to report released by PWA check made on cost of project indicated that development was unable to meet PWA requirements as to payment of capital investment within reasonable time. Rescission of this allotment was based on recommendation of Bureau of Reclamation which has completed re-examination of project and is in accord with PWA policy of approving only self-liquidating irrigation and power projects.

Says too much water in irrigation is harmful. Oregon Farmer. v. 57, no. 17. August 23, 1934. p. 9. In irrigating, rule is to supply sufficient water to provide plant large enough to harvest and then least water possible in ground so food combinations shall be best possible when plant is ready to secure and store food combinations. One must keep in mind fact that great object in irrigation is to keep water from flowing down as stream. It must go down in drops.

Sub-irrigation insures gardens. By Myrtle Murray. Farm and Ranch. v. 53, no. 13. July 1, 1934. p. 15.

Land.

Land use report. Arizona Producer. v. 13, no. 12. September 1, 1934. p. 20. Report will show present use of all land within Arizona, will contain recommendations for changes, and map areas under discussion. While no formal report or survey will be made of public domain lands, Indian reservations, forests under control of Federal government, or Federal parks, in some instances recommendations will be made for changes, where these Federally controlled lands and their use affects state or privately-owned lands. Survey made by University of Arizona.

Methods used in an economic study of land utilization in Tompkins County, New York, and in other similar studies in New York. By A. B. Lewis. 1934. 57p. Cornell University. Agricultural Experiment Station. Memoir no. 160.

Problems in land-use planning in north-eastern Minnesota. By C.F. Clayton. Journal of Land and Public Utility Economics. v. 10, no. 2. May, 1934. p. 167-179.

Study of rural community development in Waterville, New York. By W.G. Mather, Jr., T. H. Townsend, and Dwight Sanderson. 1934. 39p. Cornell University, Agricultural Experiment Station. Bulletin no. 608.

Texas considers rural rehabilitation. By O.B. Martin. Extension Service Review. v. 5, no. 8. August, 1934. p. 117-118. Although rehabilitation of farm families now on land is first consideration of Division of Rural Rehabilitation and Stranded Population of Federal Emergency Relief Administration, program also calls for rehabilitation of displaced farmers and former farmers now stranded in towns and cities. Development of community work centers, community farmsteads, commodity exchanges, public-work projects, and subsistence gardens as means of providing opportunity for relief families subject to rehabilitation are included in plans.

Miscellaneous.

California County expenditures. By J. K. Galbraith. 1934. 108p. California. Agricultural Experiment Station. Bulletin No. 582

Charted course toward stable prosperity. By Henry A. Wallace. 1934. 11p. U.S. Department of Agriculture. Agricultural Adjustment Administration.

Cost control: Its importance is emphasized by trend of the times. By L.P. Alford. Mechanical Engineering. v. 56, no. 8. August, 1934. p. 466-467, 469.

Federal legislation, rulings, and regulations affecting the state agricultural experiment stations. 1934. 36p. U.S. Department of Agriculture. Miscellaneous publication no. 202.

Report of the executive secretary of the executive council to the President, August 25, 1934. Washington, Government Printing Office, 1934. 48p. Condensed report of federal activities in the program of economic recovery and reconstruction.

Services of the National Bureau of Standards to consumers. By Lyman J. Briggs. Annals of the American Academy of Political and Social Science. v. 173. May, 1934. p. 153-157.

Some characteristics of reflecting surfaces. By Frank Benford. General Electric Review. v. 37, no. 9. September, 1934. p. 414-415.

Transient vibrations of machines. By W.E. Johnson. General Electric Review. v. 37, no. 9. September, 1934. p. 423-428. Acceleration and vibration. Criteria and vibrational effects. Analysis of forces. Motions in one degree of freedom. Extension to several degrees of freedom. Results indicated by analysis.

World trend toward nationalism. Proceedings of the thirty-eighth annual meeting of the Academy with additional papers presented before the Academy of World Economics. Annals of the American Academy of Political and Social Science. v. 174. July, 1934. 222p.

Motors.

Reducing the cost of electric current. By C. F. Scribner. Southern Power Journal. v. 52, no. 10. October, 1934. p. 32-38. Substantial savings can be made in motor driven plants by adjusting motor capacity to machine demand, substituting group drives for individual drives, and installing synchronous motors to improve power factor and secure preferential rates.

Spark arresters for motorized equipment. By J. P. Fairbank and Roy Bainer. 1934. 42p. California. Agricultural Experiment Station. Bulletin no.577.

Oils.

Lubricating oil tests. By James I. Clower. 1934. 41p. Virginia Polytechnic Institute. Bulletin. v. 27, no. 11. Practical interpretation of their significance.

Oils. (Cont'd)

Oxidation stability of lubricating oils, and a new oxidation test. By Boyd, Ralph Higgins, and Donald Morgan. Part I. National Petroleum News. v.26, no. 32. August 8, 1934. p. 22, 24, 26, 29, 32. New method for determining oxidation stability of lubricating oils, developed by chemists of U.S. Bureau of Mines. Test was developed as part of larger program for studying refining of lubricating distillates made from different crudes of United States. Correlation of these test results with service results will likely prove of value.

Proceedings of the eighth oil power conference and the seventh national meeting of the oil and gas power division of the American Society of Mechanical Engineers held at Pennsylvania State College, State College, Pennsylvania, June 20 to 23, 1934. 1934. 143p. Pennsylvania State College. School of Engineering. Technical bulletin no. 20. Recent developments in Diesel engine fuel testing, by T.B. Rendel, p. 93-107. Diesel engines of light weight, high speed and high mean effective pressure, by O.D. Treiber, p. 134-141.

Winter oils for automobile engines. By W. H. Graves, H. C. Mougey, and E.W. Upham. S.A.E. Journal, v. 35, no. 1. July, 1934. p. 238-247. S.A.E. crankcase-oil viscosity-numbers, which were adopted in July, 1926, provided for classification of lower-viscosity oils at 130 deg. fahr. and higher viscosity oils at 210 deg. fahr. It was recognized by 1930 that classification for winter oils must be based on viscosity of oil at starting temperature, and work was started on this problem. In June, 1933, 10-W and 20-W oils, which are classified in accord with their viscosity at 0 deg. fahr., were adopted for publication and trial. Results of use of these oils during winter of 1933-1934, together with their advantages, are discussed. Data show that these oils are necessary for cold starting, provide adequate lubrication and improved performance and give reasonable oil mileage. Although higher-viscosity oils give more miles per gallon of oil, by far most important factor in oil consumption is engine speed. Lower-viscosity oils, that are required for winter operation, reduce engine friction; and total cost of oil plus gasoline, using oils of lower viscosity, may be less than when using oils of higher viscosity.

Pipes and Piping.

Bibliography of piping information. Heating, Piping and Air Conditioning. v. 6, no. 10. October, 1934. p. 433-434.

Potatoes.

Growing potatoes in Colorado. By Carl Metzger. 1934. 102p. Colorado Agricultural Experiment Station. Bulletin no. 412.

Potato production in the South. By William Stuart. 1934. 30p. U.S. Department of Agriculture. Farmers' Bulletin no. 1205.

Spuds and research. By S.W. Fletcher. Pennsylvania Farmer. v. 3, no. 5. September 1, 1934. p. 1, 18.

Public Works.

Federal funds for power. Electrical World. v. 104, no. 11. September 29, 1934. p. 32-34. Major projects exceed $600,000,000; about half this sum has been spent or contracted for. They will be able to generate so much energy in excess of present use in their localities that either (a) they will compete with existing plants or (b) they will necessitate expensive readjustments of energy flow or (c) they will remain partly idle until consumption is greatly increased.

Two public power projects get under way in Nebraska. Engineering News Record. v. 113, no. 15. October 11, 1934. p. 469-472. Financed by PWA, work on Loup River power project and on Sutherland combined power and irrigation water-supply project has reached stage where detailed plans are being made and some construction contracts have been let.

Pumps and Pumping.

Beet farmers man the pumps. Through the Leaves. v. 22, no. 5. September, 1934. p. 134-140. Over 500 wells supply water in battle against drouth.

Going modern with water. New England Homestead. v. 107, no. 15. July 21, 1934. p. 1, 7-8. Automatic pump abolishes time- and labor-wasting chore.

Large centrifugal pumps on English drainage works. By E.E.R. Tratman. Engineering News-Record. v. 113, no. 13. September 27, 1934. p. 399-402. Outfall station has 96-inch oil-engine pumps for high-tide discharge to supplement low-tide gravity sluices with stoney gates. District has 130 miles of main ditches, with some navigation. Land is largely below sea level, and still sinking.

Rain and Rainfall.

Can we increase our rainfall? By J. C. Jensen. Nebraska Farmer. v. 76, no. 19. September 15, 1934. p. 20-21. Runoff water should be impounded.

Refrigeration.

Farm milk cooling plants and their performance. By John E. Nicholas. Refrigerating Engineering. v. 28, no. 2. August, 1934. p. 73-75, 92. Summary: It has been generally supposed that any method could be used to cool milk so long as it is cooled. This, however, is not the case; milk should be cooled by direct immersion and water should be agitated for 1¼ hr. Some ice on coils is favorable to rapid and uniform cooling, but thick ice on coils will prevent rapid transfer of heat. Water cooling curves indicate that connecting of expansion valve to bottom or top has marked influence on uniformity of water cooling. There is at least 25 degrees F. difference between point where evaporating coils enter water, and point where it leaves cooling water, and there is approximately 40 degrees F. of superheat before it enters compressor. Further study is necessary to cover some factors which were limiting barriers in tests reported. To cool milk to only 60 degrees F. is to jeopardize its quality, especially in summer. Cooling water should be kept as near 33 degrees F. as possible. Location of thermostat demands special attention, depending on direction of flow. Expanding refrigerant to top coil first is preferred. Capacity of refrigerating units is apparently exceeded.

Refrigeration.

Refrigeration, food habits and food production. By Helen H. Peffer. Refrigerating Engineering. v. 28, no. 3. September, 1934. p. 126-130. Number of mechanically refrigerated cars is very limited so far, since railroads have not been inclined to purchase these cars in addition to their large rolling stock now refrigerated by ice. Investment in ice-refrigerated cars and in reicing stations is too great to encourage introduction of new equipment which might eventually make present facilities for refrigerated transport seem antiquated.

Refrigeration in the citrus industry. By C. F. Greeves-Carpenter. Refrigerating Engineering. v. 28, no. 2. August, 1934. p. 66-72. Story of origin and growth of California Fruit Growers' Exchange, huge non-profit cooperative organization. New regulations for refrigerated transport of citrus fruits.

Refrigerator motors and electric circuits. By D. W. McHenegan and M.N. Halberg. Ice and Cold Storage. v. 37, no. 438. September, 1934. p. 151-152. Light-flicker caused by low-speed machines.

Research.

Engineering approach to a research problem. By C. O. Reed. 1934. 15p. Mimeographed. Paper given before the Agronomy Seminar, Ohio State University.

Research and adjustment march together. By Henry A. Wallace. Fertilizer Review. v. 9, no. 3. July-August, 1934. p. 9. Agriculture needs not less science in its production, but more science in its economic life. It is possible to have full science, embracing distribution as well as production of wealth.

Sewage and Sewage Disposal.

Plumbing and sanitation. Architectural Forum. v. 60, no. 6. June, 1934. p. 440-444.

Tenth annual conference. Michigan Sewage Works Association. 1934. 74p. Michigan. Engineering Experiment Station. Bulletin no. 58.

Silos.

Farmer has become better prospect for silos - May be financed under NRA. Brick and Clay Record. v. 85, no. 3. September, 1934. p. 82.

Five kinds of emergency silos. By C. W. McCampbell. Kansas Farmer. v. 72, no. 16. August 20, 1934. p. 3. Bundle silo is constructed of bundles of feed from which silage is made. Baled straw silo is made of bales of straw laid as bricks and held in place by wires running around silo. Corn crib slat silo, made of corn crib slats, lined with tar or building paper. Pit silo and trench silo.

Picket fence silos meeting farm needs. By H. F. McColly. Agricultural Leaders' Digest. v. 15, no. 5. September, 1934. p. 17. Advantages of picket fence silo are ease and speed of construction, also, silo can be built above ground, and without pit or foundation, it can be placed in convenient location and moved every year if desired, and it can be placed on soils unsuitable for trench or pit silos on account of water.

Silos. (Cont'd)

Temporary silos for Michigan. By C. H. Jefferson and A. J. Bell. 1934. 14p. Michigan State College of Agriculture and Applied Science. Extension division. Extension bulletin no. 141.

Trench silos on every farm. Farm and Ranch. v. 53, no. 13. July 1, 1934. p. 9. Constructing a trench silo. Filling the silo.

Soil moisture.

Heavy rains in Southwest encourage fall plowing. Science News Letter. v. 26, no. 699. September 1, 1934. p. 136. However, in spite of relief that recent rains have brought to anxious watchers of agricultural situation, they are under no illusions that drought has been forced into full retreat. Many more fall rains must come, and much long-lying winter snow, before there is enough water on land to make up for snow, before there is enough water on land to make up for serious seasonal deficits that run back as far as 1930. Subsoil as well as surface is depleted of moisture, and several whole years of excess precipitation will be needed to restore land to normal condition.

Soils.

Has the East enough good soil? American Agriculturist. v. 131, no. 15. July 21, 1934. p. 5, 19.

Principal soils of New Jersey and their utilization for agriculture. By Linwood L. Lee. 1934. 16p. New Jersey Agricultural Experiment Station. Bulletin no. 569.

Sandy soils, methods of management. By G. M. Grantham and C.E. Millar. 1934. 42p. Michigan, Agricultural Experiment Station. Special bulletin no. 248.

Stability of soils depends upon shear strength. By C.A. Hogentogler. Public Works. v. 65, no. 8. August, 1934. p. 9-12.

Spraying and Dusting.

Tank-mixture method for dormant oil spraying of deciduous fruit trees in California. By Arthur D. Borden. 1934. 20p. California. Agricultural Experiment Station. Bulletin no. 579.

Storage Houses.

Storage of sweet potatoes. By H. C. Thompson, Victor R. Boswell and J.H. Beattie. Revised. 1934. 28p. U.S. Department of Agriculture. Farmers' bulletin no. 1442.

Studies on cold storage of vegetables. By H. Platenius, F.S. Jamison and H.C. Thompson. 1934. 24p. Cornell University Agricultural Experiment Station Bulletin no. 602.

Subsistence Homestead.

Bibliography of land settlement with particular reference to small holdings and subsistence homesteads. Compiled by Louise O. Bercaw, A. M. Hannay and Esther M. Colvin. 1934. 492p. U.S. Department of Agriculture Miscellaneous Publication no. 172.

Sugar Beets.

Planting sugar beets on beds favored by California farmers. Through the Leaves. v. 22, no. 5. September, 1934. p. 150-155. New development, borrowed from lettuce industry, to be investigated with view to possible advantages in Great Western Territory.

Sugar Cane.

Cane cultivation in Cuba. By H. G. Sorenson. Facts About Sugar. v. 29, no. 9. September, 1934. p. 320-322. Some suggestions for economical and efficient production of crops under present day conditions.

Sugar-cane culture in Delta region of Kwantung Province, near Canton, China. By R. H. King. Sugar News. v. 15, no. 5. May, 1934. p. 257-261. Preliminary notes on sugar-cane culture, according to local practices, and on soil preparation.

Surveying.

Huge 50-in. precision camera for copying maps and charts. By J. H. Hawley. Engineering News-Record. v. 113, no. 15. October 11, 1934. p. 461-462. Coast and Geodetic Survey develops unusual equipment to speed production and increase accuracy in reproducing large charts for use in re-survey work.

Leveling in Maine. By Charles J. Clifford. 1934. 69p. U.S. Coast and Geodetic Survey. Special Publication no. 181.

Leveling in New Hampshire and Vermont. By Charles J. Clifford. 1934. 27p. U. S. Coast and Geodetic Survey. Special Publication no. 182.

Tennessee Valley Authority.

An appraisal of progress made to date by the TVA. By S.T. Henry. Engineering News-Record. v. 111, no. 12. September 20, 1934. p. 355-359. Engineering and construction operations well advanced. Domestic power-sales policy producing results in scattered localities. Little accomplished in developing new industries and in improving agricultural conditions.

National program in the Tennessee Valley. By Dr. Harcourt A. Morgan. 1934. 13p. Tennessee Valley Authority, Knoxville, Tennessee.

Terracing.

Terraces save tons of soil. Farm and Ranch. v. 53, no. 14. July 15, 1934. p. 11. First weighing and measurement of soil losses under varying conditions of cropping and cultivation was made by Superintendent Dickson at Texas Experiment Station, located at Spur. General experiment stations of Federal Government, used for measuring soil losses and studying means of

Terracing. (Cont'd)

preventing soil erosion, are modeled after Texas station. These stations are located so that studies may be made under different soil and climatic conditions. They have been in operation long enough to secure some very definite information.

Tires.

Care of tractor tires. By Leon C. Egner. Arizona Producer. v. 13, no. 12. September 1, 1934. p. 11. Easy to prevent excessive wear and slippage by being careful on a few points.

Tobacco.

Cigarette and cigar tobaccos. By W. W. Garner, C. W. Bacon, and John D. Bowling, Jr. Industrial and Engineering Chemistry. v. 26, no. 9. September, 1934. p. 970-974. Relationship of production conditions to chemical and physical characteristics.

Curing stalk-cut tobacco. By J.S. Owens and O.E. Street. New England Homestead. v. 107, no. 17. August 18, 1934. p. 4, 8. Annual damage from sweat can be avoided by proper ventilation and artificial heat.

Water Supply.

Attic tank supply for water system. Pennsylvania Farmer. v. 3, no. 5. September 1, 1934. p. 15.

Cisterns may relieve water shortage in farm homes. Utah Farmer. v. 15, no. 3. September 10, 1934. p. 9.

Drought problems of the arid West. Engineering News-Record. v. 111, no.12. September 20, 1934. p. 369. Most serious problem of drought of 1934 are found in western third of the country, where normal rainfall is 20 inches or less. Farther East, where average rainfall is 30 inches or more, there is reason to believe that next year abundant crops will mature, but in marginal land drought is always hovering on horizon. In all, government has built canals and reservoirs to irrigate land on 27 projects. This year, with rivers a shadow of their average flow, on 17 of these 27 projects there is ample water supply. On ten others there is some shortage but no distress.

Nation water resources organization functioning in eight drainage areas. Engineering News-Record. v. 111, no. 12, September 20, 1934. p. 382. Reports to be prepared by each of these eight regional consultants are (1) inventory of water resources of region; (2) inventory of present utilization of these water resources; (3) analysis of legal and administrative problems relating to water resources of region; and (4) description of existing planned water resources development in area, proposed planning of projects for region already formulated by responsible agencies, and finally, recommendations of regional consultant setting forth his ideas relating to future planning and how such planning may fit into broad national water resources policy.

National water policy in the making. By Carey H. Brown. Engineering News-Record. v. 113, no. 13. September 27, 1934. p. 393-396. Problems involved in comprehensive study of our water resources as revealed by review

of early work of Mississippi Valley Committee. Policies formulated flood-control projects to be financed in part by PWA.

New aspects of water studies: Editorial. Engineering News-Record. v. 113, no. 11. September 13, 1934. p. 347. Whether and to what extent our waters will in time be acknowledged as truly national resource, to be owned and controlled only by people at large for their joint interest, remains to be determined by future events. For present it is certain that water resources will henceforth receive far more detailed and thorough study than has been accorded them in the past. Both water supply and water planning will continue to be important public activities, in view of their unmistakable relation to all problems of regional development. We may be confident, more over, that study and planning will have constructive results provided a sound and secure foundation of fact is laid down. It is in respect to determination of these fundamental facts that there is most immediate need for modernization of our thinking and procedure. Observation and collection of water data have always been haphazard and scattered, largely because of failure to recognize comprehensive bearing of all water facts upon general welfare, and their utter lack of coordination is the serious part of our present situation. Centralization of all water supply efforts is one alternative to present conditions, but it is also one that is affected by numerous weaknesses and questionable points. Federal, State, and other agencies of diversified character are engaged in water observation of one type or another, and in most essential interests of subject matter it is important that all three agencies be continued in action. Constructive result can be achieved through coordination of all water data by means of clearing-house, which would leave all present water study agencies undisturbed, but would obtain and compile all their data and progressively coordinate methods of procedure.

Rational plan for conservation of water resources of Salt River Valley. By Raymond A. Hill. Arizona Producer. v. 13, no. 13. September 15, 1934. p. 10-12. Chart gives growth of irrigation, and maximum available water supply of the Salt river valley, Arizona.

Report on Central Valley project, by Edward Hyatt. August 1, 1934. 1934. 32p. Multigraphed. Sacramento, Water Project Authority of the State of California.

Water resources report shows need of more data and fuller study. Engineering News-Record. v. 113, no. 11. September 13, 1934. p. 340-341. Committee set up at request of Congress reports to President on coordinated development of nation's water resources. Program laid down for several regional committees had been expanded by Cabinet committee to cover: 1) navigation improvement (a) for benefit of navigation within interior of United States, and (b) to provide for navigation by ocean vessels; 2) power development; 3) protection of municipal and domestic water supplies; 4) investigation and development of groundwater supplies; 5) land conservation consisting of (a) rural land-use adjustments and (b) soil-erosion control; 6) forest protection and maintenance; 7) collection of additional basic streamflow data; 8) increased opportunities for recreation and promotion of wild life; and 9) protection and regulation of commercial fisheries. In concluding its report, Cabinet states that basis of comprehensive plan for water policy lies in 1) adequate facts, maps and general information easily accessible and in comparable form; 2) continuous study and refinement of plans for full development of river basins with coordination of present agencies en-

gaged in elements of work; 3) agreement upon statement of principles to govern division of responsibility and costs as among federal, state, municipal and private parties, for various kinds of projects and combinations of projects; 4) agreement upon statement of principles to govern extent to which various kinds of projects shall be charged to users and on methods of apportioning such charges; and 5) agreement upon statement of social, economic, physical and geographical criteria for choice and priority of projects and units.

Wood Preservation.

Termites attacking wood in grain elevators. Grain and Feed Journals, Consolidated. v. 72, no. 5. March 14, 1934. p. 210-211.